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"The money should be spent not on buildings, but on a national junkshop," where means of defense can be tried out first, at relatively small cost so as to learn how to get the most and very best for the money, and so as to avoid making expensive and dangerous blunders on a wholesale scale.

SCIENTIFIC NOTES AND NEWS

THE American Association for the Advancement of Science and the scientific societies affiliated with it meet at the Ohio State University, Columbus, Ohio, beginning on Monday, December 27. The program of the meeting has been printed in *SCIENCE*, and details in regard to the places of meeting and the officers of the different societies that meet during convocation week will be found elsewhere in the present issue of the journal.

WE have not been able to obtain any program of the Pan-American Scientific Congress which meets in Washington for two weeks beginning on December 27. It is possible that after the adjournment of the Columbus meeting of the American Association, the council will call a special meeting at Washington in conjunction with the congress.

THE nineteenth International Congress of Americanists and the affiliated societies, meeting in Washington from December 27 to 31, has an extensive program on which are represented most American anthropologists and a number of foreigners.

THE State Geographical Society of New Mexico was organized in October with David Ross Boyd, Ph.D., president of the state university as president, and Governor McDonald, Senator Catron, Ex-Governor Prince and Professor C. T. Kirk, as vice-presidents.

DR. ERASMUS KITTLER, known for his work in electro-technics, has been awarded an honorary doctorate of engineering by the Darmstadt Technical School.

DR. ALBERT STUTZER, professor of agricultural chemistry at Königsberg, will retire from active service at the close of the present semester.

DR. HUGO FISCHER has been appointed acting head of the chemical and bacteriological department of the Kaiser Wilhelm Department for Agriculture in Bromberg.

KING FERDINAND, of Bulgaria, has been removed from the membership in the Entomological Society of France, which he has held since 1882. His name has also been erased from the membership list of the Petrograd Entomological Society. In this society there has been elected in his place, M. Lameere, of Brussels, who is now working in the Paris Museum of Natural History.

THE Massachusetts Agricultural College at Amherst has sent Professor F. A. Waugh to lecture to the students in landscape gardening at the University of Illinois. In exchange, the Illinois Agricultural College has sent Professor R. R. Root to take charge of the classes of Professor Waugh at Amherst.

DR. CHARLES S. PALMER, formerly professor of chemistry in the University of Colorado, and later consulting chemical engineer for various manufacturing interests in New England, has recently accepted a fellowship in the Mellon Institute for Industrial Research of the University of Pittsburgh.

AT the last meeting of the Rumford Committee of the American Academy of Arts and Sciences, the following appropriations were made: \$200 for the purchase of a comparator to be used by Mr. Raymond T. Birge, of Syracuse University, in his researches in spectroscopy. \$400, in addition to a former appropriation, to Professor P. W. Bridgman, of Harvard University, in aid of his researches upon thermal phenomena under high pressures. \$300, in addition to a former appropriation, to Professor A. L. Clark, of Queens University, in aid of his researches on the physical properties of vapors in the neighborhood of the critical point. \$300, in addition to a previous appropriation, to Professor Gilbert N. Lewis, of the University of California, in aid of his researches on free energy.

PROFESSOR BENJAMIN MILLER, of Lehigh University, and Dr. Joseph T. Singewald, Jr., associate in economic geology at the Johns

Hopkins University, have returned from a seven months' tour of South and Central America, bringing with them a valuable collection of ores.

DR. WALTER PENCK, docent for geology at Leipzig, has accepted a chair of geology at Constantinople.

DR. FREDERICK PARKER GAY, professor of pathology in the University of California, has been chosen by his colleagues in the faculty of the University of California as faculty research lecturer for 1916, and will give this annual public address on the results of his own research in some special field at the University of California on the evening of Charter Day, March 23, 1916. His selection was in recognition of his recent work in developing improved methods for the treatment of pneumonia, a new method for the treatment of typhoid fever by the use of a sensitized vaccine, his researches, in collaboration with Dr. Edith J. Claypole, in the field of immunization against typhoid, and his development in association with Dr. J. N. Force of a skin test as to immunity against typhoid.

A SERIES of free public lectures for amateur gardeners and those interested in plant growth has been established at the University of Pennsylvania. The lectures are being given on Wednesday evenings by Dr. John M. Macfarlane, professor of botany and director of the botanical gardens of the university.

PROFESSOR ROBERT A. MILLIKAN, of the University of Chicago, addressed the Washington University chapter of Sigma Xi in St. Louis on November 30 on the subject "Atomism in Modern Physics."

A BUST of Alphonse Bertillon has been unveiled in the Paris Bureau of Anthropometry.

DR. A. ALEXANDER SMITH for many years professor of medicine in the Bellevue Hospital Medical College, and in the combined University and Bellevue Hospital Medical College, died on December 13, in his sixty-ninth year.

DR. ALEXANDER T. ORMOND, president of Grove City College, formerly professor of philosophy at Princeton University and a dis-

tinguished writer on philosophical subjects, died on December 18, aged sixty-seven years.

LIEUT.-COL. CHARLES S. BROMWELL, head of the Army Engineer Corps at Honolulu, died by suicide on December 10 at the age of forty-six years. He had served as superintendent of public buildings in Washington and as military aid to President Roosevelt. During the past year he had been in Honolulu, where he was in charge of the engineering work in connection with the improvement of the harbor and the construction of the new breakwater at Hilo.

DR. PETER VOGEL, professor of mathematics in the artillery and engineering school at Munich, has died at the age of fifty-eight years.

DR. FRIEDRICH QUOOS, assistant in the chemical laboratory of the Charlottenberg Technical Institute, has been killed in the war.

SURROGATE COHALAN has upheld objections by Mrs. Lida Pope Colburn to the will of her husband, Richard T. Colburn, on the ground that the laws of the state of New York do not permit a testator whose wife is living to bequeath more than one half of his estate to educational or scientific institutions. He died on December 9, 1914, and left the bulk of his estate of \$297,537 to the Carnegie Research Fund [Carnegie Institution of Washington] and the American Association for the Advancement of Science for original research in "physical or psychic demonstrable sciences." Mr. Colburn gave an annuity of \$1,200 to his widow, and said he gave her no more "in order not to tempt her into unsound investments, speculations or lures of fortune hunters, charlatans or parasites. A modest scale of expenditure is my injunction to her." The two institutions will divide half the estate and each will receive about \$75,000.

At the annual meeting of the New York Academy of Sciences, on December 20, at the Hotel Manhattan, through the courtesy of the telephone company, there was arranged a somewhat extensive program of communication with the Pacific coast. This included photographs of the line and of its construction, conversation between officers of the California Academy

of Sciences and officers of the New York Academy of Sciences, music at San Francisco, and other demonstrations,—all audible to all participants by individual receivers.

The Plant World announces the offering of two prizes for the best papers embodying original work in soil physics. The first prize will be \$50 and the second \$25, with the reservation of the right to withhold both prizes if no worthy papers are submitted or to combine the prizes for the rewarding of a paper of exceptional merit. The conditions governing the award will be similar to those employed in connection with the prizes for papers on the water relations of plants which were offered in April, 1915. The contesting contributions should be in the hands of the editor of *The Plant World* by December 1, 1916, and the announcement of the award will be made not later than March 1, 1917.

THE annual series of free public lectures under the auspices of the Harvard Medical School will be given, as usual, at four o'clock on Sunday afternoons at the Harvard Medical School. The lectures are:

January 2.—Dr. R. B. Greenough: "Cancer."

January 9.—Dr. W. H. Potter: "Military Dentistry; Experiences in a Three Months' Service in the American Ambulance Hospital, Paris."

January 16.—Dr. R. P. Strong: "Progress in Combating Epidemics of Some Infectious Diseases."

January 23.—Dr. R. B. Osgood: "Orthopædic Problems Presented by the European War."

January 30.—Dr. J. A. Honeij: "Leprosy."

February 6.—Dr. C. M. Smith: "Syphilis."

February 13.—Dr. F. H. Verhoff: "Some Simple Facts Regarding the Eyes that every one Should Know."

February 20.—W. H. Robey, Jr.: "The Value of Physical Examination to the Individual."

February 27.—Dr. C. J. White: "Occupation as a Contributing Factor to Certain Skin Diseases."

March 5.—Dr. W. R. Bloor: "The Role of Fat in the Nutrition of Man."

March 12.—Dr. F. S. Newell: "The Care of Pregnancy." (To women only.)

March 19.—J. L. Goodale: "Hay Fever and Asthma."

March 26.—Dr. F. W. White: "Chronic Indigestion."

April 2.—Dr. J. R. Torbet: "A Comparison of the Methods for the Relief of Pain in Childbirth." (To women only.)

April 9.—Dr. P. G. Stiles: "The Present Conception of an Adequate Diet."

April 16.—Dr. G. B. Magrath: "Death by Accident; Some of its Causes and How to Eliminate Them."

April 23.—Dr. H. P. Mosher: "The Management of Foreign Bodies in the Trachea, Bronchi and Esophagus."

April 30.—Dr. C. V. Chapin: "What the Individual Can Do to Protect Himself from Infection."

May 7.—Dr. R. I. Lee: "The Importance of Physical Examination in Health as Shown by the Examination of Harvard Students."

THE exploring excavations in the Mesa Verde National Park which the Department of the Interior is conducting under the direction of Dr. Jesse W. Fewkes, of the Smithsonian Institution, are successful to a degree scarcely anticipated when the work was begun, according to a statement by Mr. Enos Mills, sent out by the Department of the Interior. The new excavations are across the canyon from the Cliff Palace. This remarkable prehistoric village stands beneath the rim of the east side of the canyon while the structure now unearthed stands upon the rim of the west side. For many years visitors to the Mesa Verde National Park have noticed a huge mound opposite the Cliff Palace with trees growing upon it. It is this mound which the Department of the Interior determined to explore and under which Dr. Fewkes has found the most remarkable prehistoric structure north of the Aztec architecture in Mexico. It is of cut and polished stone. The building has the form of a capital D. The straight elevation is 123 feet long and the curved part 245 feet. The outer walls are double and between them are a series of narrow rooms. As the outer walls are unbroken, the entrance to this building must have been either subterranean or by the means of ladders through the top. Dr. Fewkes believes the ruin was an uncompleted fortress abandoned when the cliff dwellers disappeared from the Rocky Mountain region. At Moki Spring, a short distance from these ruins, there are a number

of other tree-grown mounds very similar in appearance to the one just excavated. Dr. Fewkes hopes next year to find what is concealed beneath.

UNIVERSITY AND EDUCATIONAL NEWS

THE contest over the will of the late General Brayton Ives, who left the bulk of his estate, valued at more than \$1,000,000, to Yale University, has been settled by the filing of an order in surrogate's court. The contest was begun by General Ives's three daughters. The terms of the settlement were not divulged.

THE Duhring Memorial Building was formally dedicated on December 13 by the trustees of the University of Pennsylvania, and a memorial tablet was unveiled at the entrance to the new book stack. This new building is a wing to the library, and was erected as a memorial to the late Louis A. Duhring, professor of dermatology at the University of Pennsylvania, who left a legacy amounting to more than a million dollars to the university. The dedicatory addresses were made by Professor Morris Jastrow, Jr., the university librarian, and Dr. Joseph G. Rosengarten, chairman of the library committee of the board of trustees. The building was accepted on behalf of the university by Provost Edgar F. Smith.

A NEW building known as the Vivarium will soon be completed at the University of Illinois. It has been constructed especially for the work of Dr. Charles Zeleny and Dr. V. E. Shelford, of the department of zoology. The building, with furnishings, will cost about \$70,000. Sea-water aquariums, a refrigerator system, and rooms in which light rays may be used to the exclusion of all others, are some of the things which make up the equipment of the Vivarium.

ASSOCIATE PROFESSOR H. P. BARSS has been promoted to be professor of botany and plant pathology at the Oregon Agricultural College, in place of Professor H. S. Jackson, who recently resigned to accept the position of plant pathologist at Purdue University.

DR. ALBION WALTER HEWLETT, professor of medicine at the University of Michigan, has

accepted a similar appointment, beginning on August 1, 1916, in the Medical School of Stanford University. This fills the vacancy left by the appointment of Dr. Ray Lyman Wilbur as president of the university.

ASSISTANT PROFESSOR A. L. LOVETT has been made acting head of the department of entomology at the Oregon Agricultural College, in place of Professor H. F. Wilson, who resigned to accept a position as professor of entomology at the University of Wisconsin.

COUNT HUTTEN-CZAPSKI, of Posen, has been appointed curator of the Warsaw University and Technical School, as reestablished under German auspices.

DISCUSSION AND CORRESPONDENCE

THE TEACHING OF ELEMENTARY DYNAMICS

TO THE EDITOR OF SCIENCE: Since I took a hand, in SCIENCE of March 29, 1915, in the controversy between Professors Huntington and Hopkins concerning the fundamental equation of dynamics, there have appeared numerous communications on the subject showing evidence of widespread interest in it. As a result of these communications, the questions at issue are now in a more chaotic state than they ever were. The time now seems opportune for a review of the positions held by the several contributors, in the hope that they may yet be brought into agreement. I offer here some brief extracts from letters that have appeared in SCIENCE in the last six months, with my comments upon them, together with a condensed restatement of the problem I gave, with my solution of it, in my previous article, again asking that if any one thinks he has a better solution he will present it for comparison.

Uniformly Accelerated Motion

Problem.—A constant force, F pounds, acts for T seconds on W pounds of matter, at rest at the beginning of the time but free to move. What are the results? Explain how the results are derived.

Answer.—Experiments with the Atwood machine and other apparatus show (a) that the velocity varies directly as the force and as the time, and inversely as the quantity of matter;